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[List of Documents Submitted]

[Item]	Specification	1
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[Item]	Drawing	1
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[Document Type] Specification

[Title of the Invention] REMOTE CONTROL METHOD, SYSTEM, SERVER,
DATA PROCESSING DEVICE, AND STORAGE MEDIUM

[Claims]

[Claim 1] A remote control method for remote-controlling a data processing device,
comprising:

a step of sending control data for operating the data processing device to a
server via the Internet from a portable device associated with the data processing device;

a step of calling the data processing device via a telephone network from the
portable device;

a step, performed by the data processing device, of referring to a caller's
number communicated when the current call is accepted, and recognizing, based on the
caller's number, whether the call is issued from the portable device associated with the
data processing device;

a step of downloading the control data from the server to the data processing
device if the call is issued from the portable device; and

a step of executing a process indicated by the control data downloaded by the
data processing device.

[Claim 2] The remote control method according to Claim 1, wherein the portable
device is a cellular phone.

[Claim 3] A remote control system for remote-controlling a data processing device via
the Internet, comprising:

a server for receiving, via the Internet, control data by which the data
processing device operates and storing the received control data in a storage device, and
downloading the control data to the data processing device via the Internet according to

a request;

a portable device associated with the data processing device, for sending the control data via the Internet to the server, and then calling the data processing device via a telephone network and designating the data processing device to download the control data from the server; and

the data processing device for: sending the server, via the Internet, a request for downloading the control data from the server according to the designation of the portable device, if it is recognized that the current call is issued from the portable device associated with the data processing device by referring to a caller's number communicated when the call is accepted; receiving the control data downloaded from the server; and then operating based on the received control data.

[Claim 4] The remote control system according to Claim 3, wherein the portable device is a cellular phone.

[Claim 5] A server for making a portable device remote-control a data processing device via the Internet, comprising:

a memory for storing a program and data for remote-controlling the data processing device; and

a processor for receiving, via the Internet, control data by which the data processing device operates from the portable device and storing the received data in a storage device, and executing a process of downloading the control data to the data processing device via the Internet according to a request from the data processing device.

[Claim 6] A data processing device remote-controlled by a portable device, comprising:

a memory for storing a program and data for being remote-controlled by the

portable device; and

a processor for: sending the server, via the Internet, a request for downloading the control data according to the designation of the portable device, if it is recognized that the current call is issued from the portable device associated with the data processing device by referring to a caller's number communicated when the call is accepted; and then executing a process based on the received control data.

[Claim 7] A storage medium storing a program for operating a server provided for controlling a data processing device from a portable device via the Internet, the program for making a computer execute processes of:

receiving, via the Internet, control data by which the data processing device operates from the portable device;

storing the received control data in a storage device; and

downloading the control data to the data processing device via the Internet according to a request from the data processing device.

[Claim 8] A storage medium storing a program for operating a data processing device remote-controlled by a portable device, the program for making a computer execute processes of:

recognizing whether a received call is issued from the portable device associated with the data processing device by referring to a caller's number communicated when the call is accepted;

sending a server, via the Internet, a request for downloading control data according to a designation of the portable device if it is recognized that the call is issued from the relevant portable device;

receiving the control data downloaded from the server; and

executing a process based on the received control data.

[Detailed Description of the Invention]

[0001]

[Technical Field of the Invention]

The present invention relates to a remote control system for remote-controlling a data processing device such as a personal computer, and in particular, one for remote-controlling the data processing device via the Internet.

[0002]

[Prior Art]

Data processing devices such as a personal computer can execute various kinds of processes and are used in various situations.

[0003]

In order to make a data processing device execute a process, the user must operate the data processing device or set and store, in advance, processes to be executed in the data processing device. When controlling the data processing device, or when storing the processes, the user must be near the data processing device.

[0004]

Furthermore, there are other methods of installing a dedicated program in both of a data processing device at the controlling side and a data processing device at the controlled side, and then remote-controlling the data processing device at the controlled side. More specifically, the user logs in to the data processing device at the controlled side by using the data processing device at the controlling side via a communication line (i.e., in a remote form), and activates a program or the like stored in the data processing device at the controlled side. Therefore, the data processing device at the controlled side operates as if it is being directly operated by the user. In this case, the data processing device at the controlling side needs to have an operating system similar to

that in the data processing device at the controlled side, and needs to have input devices similar to those necessary for directly operating the data processing device at the controlled side, such as a keyboard and a mouse. According to this method, the user can log in to a data processing device in the user's office by using a data processing device in the user's home via remote operation and perform the user's job.

[0005]

[Problems to be Solved by the Invention]

If the data processing devices can be remote-controlled, they have various convenient uses. If it is assumed that home electric appliances such as video tape recorders and audio devices are controlled using a data processing device, it is unpreferable for a user in a remote place to carry a portable data processing device (at the controlling side) having a keyboard and the like which is operated using an operating system similar to that built into a data processing device in the user's home. Therefore, conventional remote control methods are not suitable for remote-controlling the data processing device in the user's home from a remote place where the user is. Therefore, conventional remote control methods are not suitable for remote-controlling the data processing device in the user's home from remote places such as a place where the user is.

[0006]

An objective of the present invention is to provide a remote control system for operating a data processing device from remote places such as a place where the user is, by using a portable device, etc.

[0007]

[Means for Solving the Problem]

In order to achieve the above objects, a remote control method of the present

invention for remote-controlling a data processing device, includes: a step of sending control data for operating the data processing device to a server via the Internet from a portable device associated with the data processing device; a step of calling the data processing device via a telephone network from the portable device; a step, performed by the data processing device, of referring to a caller's number communicated when the current call is accepted, and recognizing, based on the caller's number, whether the call is issued from the portable device associated with the data processing device; a step of downloading the control data from the server to the data processing device if the call is issued from the portable device; and a step of executing a process indicated by the control data downloaded by the data processing device.

[0008]

Therefore, the operation of the data processing device can be remote-controlled via the server by using the portable device. In addition, the correspondence between the portable device and the data processing device can be confirmed using the caller's number communicated when the relevant call is accepted; therefore, a portable device which does not correspond to the relevant data processing device cannot perform the downloading operation.

[0009]

A remote control system of the present invention for remote-controlling a data processing device via the Internet, includes: a server for receiving, via the Internet, control data by which the data processing device operates and storing the received control data in a storage device, and for downloading the control data to the data processing device via the Internet according to a request; a portable device associated with the data processing device, for sending the control data via the Internet to the server, and then calling the data processing device via a telephone network and designating the

data processing device to download the control data from the server; and the data processing device for: sending the server, via the Internet, a request for downloading the control data from the server according to the designation of the portable device, if it is recognized that the current call is issued from the portable device associated with the data processing device by referring to a caller's number communicated when the call is accepted; receiving the control data downloaded from the server; and then operating based on the received control data.

[0010]

According to the embodiment of the present invention, the portable device is a cellular phone.

[0011]

A server of the present invention for making a portable device remote-control a data processing device via the Internet, includes: a memory for storing a program and data for remote-controlling the data processing device; and a processor for receiving, via the Internet, control data by which the data processing device operates from the portable device and storing the received data in a storage device, and executing a process of downloading the control data to the data processing device via the Internet according to a request from the data processing device.

[0012]

A data processing device of the present invention which is remote-controlled by a portable device, includes: a memory for storing a program and data for being remote-controlled by the portable device; and a processor for: sending the server, via the Internet, a request for downloading the control data according to the designation of the portable device, if it is recognized that the current call is issued from the portable device associated with the data processing device by referring to a caller's number

communicated when the call is accepted; and then executing a process based on the received control data.

[0013]

A storage medium of the present invention, storing a program for operating a server provided for controlling a data processing device from a portable device via the Internet, the program for making a computer execute processes of: receiving, via the Internet, control data by which the data processing device operates from the portable device; storing the received control data in a storage device; and downloading the control data to the data processing device via the Internet according to a request from the data processing device.

[0014]

Another storage medium of the present invention, storing a program for operating a data processing device remote-controlled by a portable device, the program for making a computer execute processes of: recognizing whether a received call is issued from the portable device associated with the data processing device by referring to a caller's number communicated when the call is accepted; sending a server, via the Internet, a request for downloading control data according to a designation of the portable device if it is recognized that the call is issued from the relevant portable device; receiving the control data downloaded from the server; and executing a process based on the received control data.

[0015]

[Embodiments of the Invention]

An embodiment of the present invention will be explained in detail with reference to the figures.

A service provided by the remote control system of the present embodiment, is

a remote control service for downloading remote control data (registered in a server by using a cellular phone or the like) into a personal computer in the user's home, and for operating the personal computer based on the remote control data.

[0016]

The remote control system of the present embodiment according to the present invention includes a server 1 and a storage device 2 on the provider side, and a cellular phone 3 and a personal computer 4 on the user's side. The cellular phone 3 and the personal computer 4 are connected to the server 1 via the Internet 5, so that data transmission (sending and receiving) is possible between these devices.

[0017]

The server 1 is a data processing device for storing data in the storage device 2, where the data is used for forming a home page which each user can establish. In addition, the remote control data received from the cellular phone 4 of each user is stored in the storage device 2 for each home page of the each user. In addition, according to a request from the personal computer 4 of each user, the server 1 sends the stored remote control data related to the relevant user to the personal computer 4 of the user.

[0018]

The storage device 2 is connected to the server 1, and stores data for forming home pages of each user, and remote control data for each home page, which is registered on each user's home page by using the cellular phone 3.

[0019]

The cellular phone 3 has a function of accessing the server 1 of the provider via a communication network (i.e., the Internet 5). The user can register the remote control data in the user's own home page by operating the cellular phone 3. In addition, by the

user's operation, the cellular phone 3 calls the user's personal computer 1 and designates the personal computer 1 to download the remote control data. Moreover, the calling operation itself may be used as a designation for downloading the remote control data, or data for the designation may be sent after the telephone connection is established.

[0020]

The called personal computer 4 recognizes that the current call is issued from the user's own cellular phone 3, by referring to a caller's number which is communicated when the call is accepted. Then, in response to the designation of the user's cellular phone 3, the personal computer 4 sends, via the Internet 5, to the server 1, a request for downloading the remote control data registered on the user's own home page. In addition, after receiving the remote control data downloaded through the Internet 5 from the server 1, the personal computer 4 operates based on the received remote control data.

[0021]

The cellular phone 3 and the personal computer 4 are connected to the server 1 via the Internet 5. Accordingly, document, image, voice data, or the like can be transmitted between these devices.

[0022]

The operation of the remote control system of the present embodiment will be explained below.

[0023]

With reference to FIG. 2, in step 100, the cellular phone 3 operated by the user is connected to the server 1 via the Internet 5. In step 101, remote control data for controlling the personal computer 4 is registered on the user's own home page. Accordingly, the remote control data corresponding to the user's own home page is stored in the storage device 2. In step 102, the connection between the cellular phone 3

and the server 1 through the Internet 5 is disconnected.

[0024]

Then in step 103, the cellular phone 3 calls the personal computer 4 via a telephone line. In step 104, the personal computer 4 recognizes whether the current call is from the user's own cellular phone 3. If it is determined that the current call is from the user's own cellular phone 3, the personal computer 4 recognizes the current call as a designation for downloading the remote control data.

[0025]

Next, in the step 105, the personal computer 4 accesses the server 1 via the Internet 5. In step 106, according to a request sent from the personal computer 4, the remote control data registered on the user's home page is downloaded from the server 1 to the personal computer 4. In the next step 107, the connection between the personal computer 4 and the server 1 through the Internet 5 is disconnected.

[0026]

In step 108, the personal computer 4 is operated based on the remote control data. With reference to FIG. 3, the remote control data is formed by, for example, at least one process, and control data corresponding to the process. According to the contents of the remote control data, the personal computer 4 performs, for example, a process of TV recording, Internet browsing, or the like.

[0027]

Accordingly, the personal computer 4 can be remote-operated via the server 1 by using the cellular phone 3; thereby, a user who is out can make the personal computer 4 in the user's home execute a desired process, or control a home electric appliance connected to the personal computer 4. In addition, the caller's number communicated when the call is accepted is used for confirming the user's own cellular phone 3; thereby,

a cellular phone 3 which does not correspond to the relevant personal computer 4 cannot designate the downloading operation, and the personal computer is not operated by erroneous control.

[0028]

With reference to FIG. 4, the server 1 in the present embodiment is a data processing device having a processor 11, a memory 12, and a communication line interface 13. The server 1 is connected to the cellular phone 3 and the personal computer 4 via the communication line interface 13 and the Internet 5. The storage medium 6 is a floppy (registered trademark) disk, CD-ROM, magneto optical disk, or the like, in which a program for operating the server 1 as the server in the present remote control system is stored.

[0029]

The processor 11 reads the program in the storage medium 6 and stores the program into the memory 12, and then executes the program.

[0030]

With reference to FIG. 5, the personal computer 4 of the present embodiment is a data processing device having a processor 41, a memory 42, and a communication line interface 43. The personal computer 4 is connected to the server 1 via the communication line interface 43 and the Internet 5, and is connected to the cellular phone 3 via the communication line interface 13 and a telephone network. In addition, the storage medium 7 is a floppy disk, CD-ROM, magneto optical disk, or the like, in which a program for operating the personal computer 4 as the personal computer in the present remote control system is stored.

[0031]

Then the processor 41 reads the program in the storage medium 7 and stores the

retrieved program in the memory 42, and then executes the program.

[0032]

[Advantageous Effects of the Invention]

As explained above, according to the present invention, the operation of the data processing device can be remote-controlled by using the portable device. Therefore, a user who is out can make the data processing device in the user's home execute a desired process, or control a home electric appliance connected to the data processing device. In addition, the correspondence between the portable device and the data processing device can be confirmed using the caller's number communicated when the relevant call is accepted; therefore, a portable device which does not correspond to the relevant data processing device cannot designate the downloading operation, thus the data processing device will not be operated by erroneous control.

[Brief Description of the Drawings]

[FIG. 1] A system configuration diagram showing a remote control system according to one embodiment of the present invention.

[FIG. 2] A flowchart for explaining operation of the remote control system of the present embodiment.

[FIG. 3] A data configuration diagram showing the contents of the remote control data used in the embodiment of the present invention.

[FIG. 4] A block diagram showing the structure of the server in the present embodiment.

[FIG. 5] A block diagram showing the structure of the personal computer in the present embodiment.

[Brief Description of the Reference Symbols]

1: server

11: processor

12: memory

13: communication line interface

2: storage device

3: cellular phone

4: personal computer

41: processor

42: memory

43: communication line interface

5: Internet

6 and 7: storage medium

100 to 108: step

[Document Type] Abstract

[Abstract]

[Problem to be Solved by the Invention] To provide a remote control system for operating a data processing device from a remote place where the user is or the like by using a portable device, etc.

[Means for Solving the Problem] Control data for operating a personal computer 4 is transmitted from cellular phone 3 associated with the personal computer 4 to a server 1 through the Internet 5. The cellular phone 3 associated with the personal computer 4 calls the personal computer 4; thereby connecting the cellular phone 3 and the personal computer 4. The personal computer 4 recognizes, based on a caller's number, whether the call is issued from the cellular phone 3 associated with the personal computer 4. If the call is issued from the cellular phone 3 associated with the personal computer 4, the personal computer 4 downloads the control data from the server 1 following the designation of the cellular phone 3, and then executes a process indicated by the control data downloaded by the personal computer 4.

[Selected Drawing] FIG. 1

FIG. 1

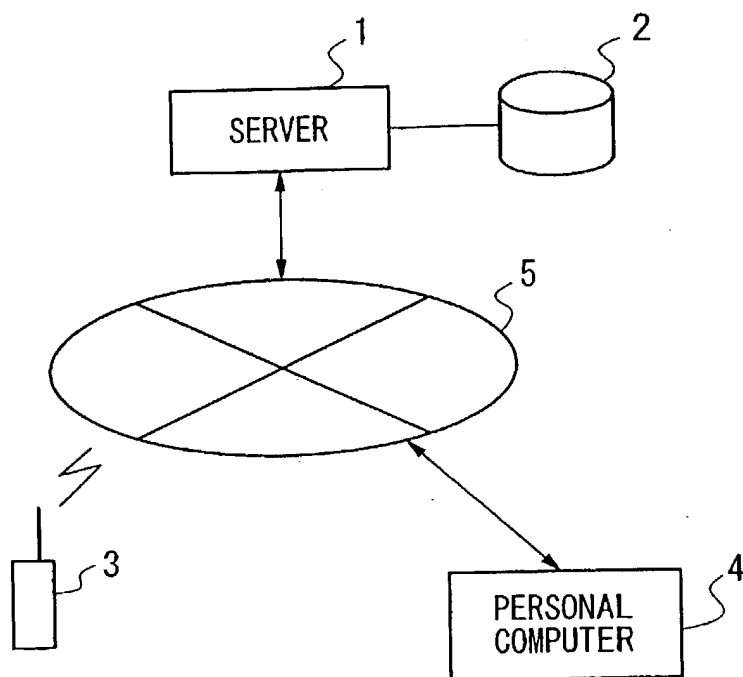


FIG. 3

No.	PROCESS	DATA
1	TV RECORDING	April 3rd, 21:30 to 22:24, 1CH
2	INTERNET BROWSING	March 31th, 3:00, http://www.xxx.xxx.xxx
...		
E	END	

FIG. 2

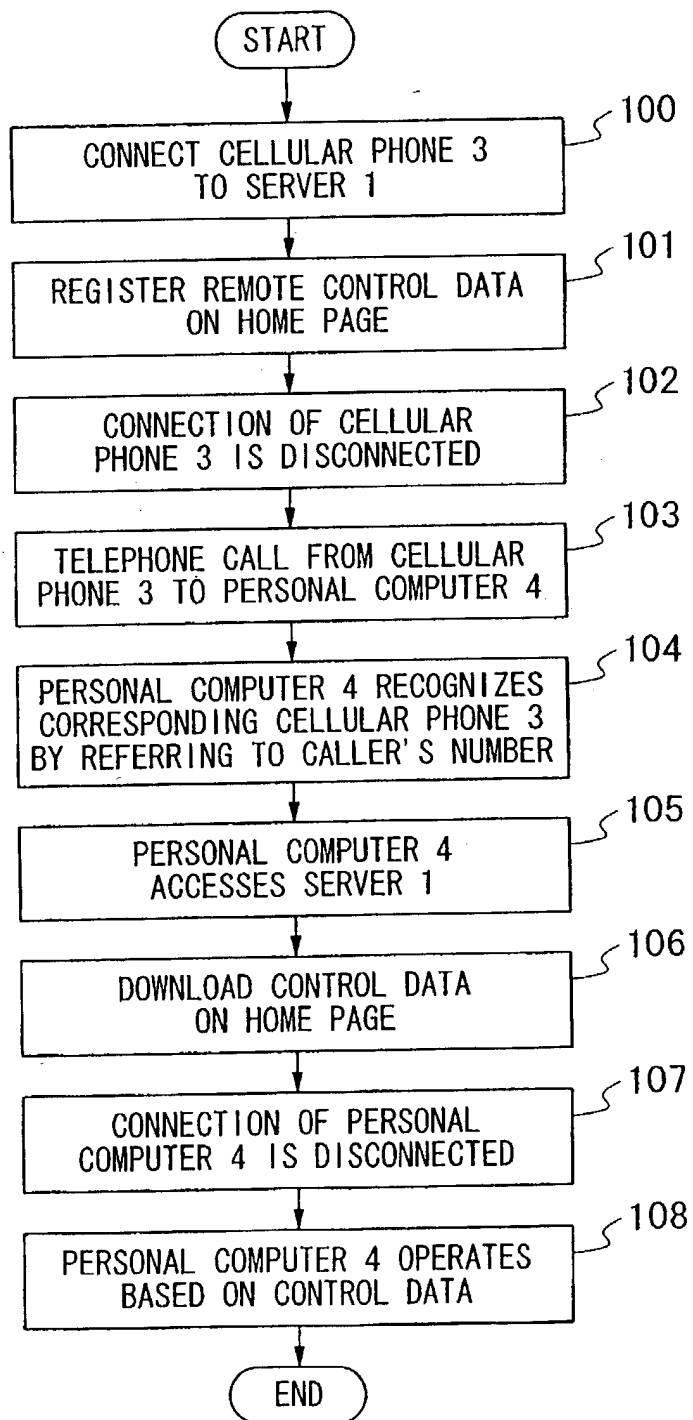


FIG. 4

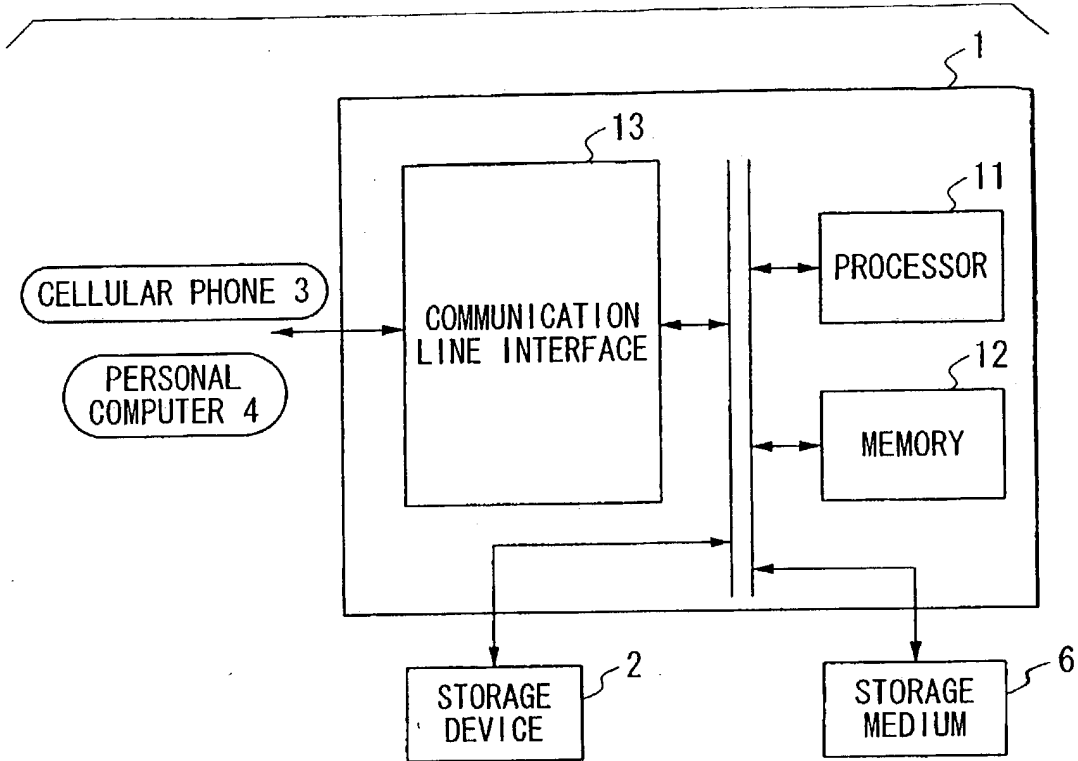


FIG. 5

